

And by the same way of arguing, applied to the third Experiment of this Book, it may be concluded, that the white Colour of all refracted Light at its very first emergence, where it appears as white as before its incidence, is compounded of various Colours.

EXPER. XIII.

In the foregoing Experiment the several intervals of the Teeth of the Comb do the office of so many Prisms, every interval producing the Phenomenon of one Prism. Whence instead of those intervals using several Prisms, I try'd to compound whiteness by mixing their Colours, and did it by using only three Prisms, as also by using only two as follows. Let two Prisms ABC and abc , whose refracting Angles B and b are equal, be so placed parallel to one another, that the refracting Angle B of the one may touch the Angle c at the base of the other, and their planes CB and cb , at which the rays emerge, may lye in directum. Then let the Light trajected through them fall upon the Paper MN , distant about 8 or 10 Inches from the Prisms. And the Colours generated by the interior limits B and c of the two Prisms, will be mingled at PT , and there compound white. For if either Prism be taken away, the Colours made by the other will appear in that place PT , and when the Prism is restored to its place again, so that its Colours may there fall upon the Colours of the other, the mixture of them both will restore the whiteness.

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This Experiment succeeds also, as I have tryed, when the Angle b of the lower Prism, is a little greater than the Angle B of the upper, and between the interior Angles B and c , there intercedes some space Bc , as is represented in the Figure, and the refracting planes BC and bc , are neither in directum, nor parallel to one another. For there is nothing more requisite to the success of this Experiment, than that the rays of all sorts may be uniformly mixed upon the Paper in the place PT . If the most refrangible rays coming from the superior Prism take up all the space from M to P , the rays of the same sort which come from the inferior Prism ought to begin at P , and take up all the rest of the space from thence towards N . If the least refrangible rays coming from the superior Prism take up the space MT , the rays of the same kind which come from the other Prism ought to begin at T , and take up the remaining space TN . If one sort of the rays which have intermediate degrees of refrangibility, and come from the superior Prism be extended through the space MQ , and another sort of those rays through the space MR , and a third sort of them through the space MS , the same sorts of rays coming from the lower Prism, ought to illuminate the remaining spaces QN , RN , SN respectively. And the same is to be understood of all the other sorts of rays. For thus the rays of every sort will be scattered uniformly and evenly through the whole space MN , and so being every where mixt in the same proportion, they must every where produce the same Colour. And therefore since by this mixture they produce white in the exterior spaces MP and TN , they must also produce white in the interior space PT . This is